

BOTANICAL/COMMERCIAL CLASSIFICATIONSenecio cruentus x Senecio heritieri/Cineraria PlantVARIETAL DENOMINATIONcv. 'Sunsenerabu'

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BACKGROUND OF THE VARIETY

The present invention relates to a new and distinct variety of *Senecio* genus plant named 'Sunsenerabu'.
10 'Sunsenerabu' is a distinct and unique variety, which is a dome-shaped plant of height with abundant branching, light violet flowers, and a long blooming term.

There are many varieties in *Senecio L. Senecio cruentus* is well known as 'Cineraria' and cultivated in 15 the world. There are many cultivated varieties with flowers of a single color of white, pink, red, blue or violet. Some varieties have marginal variegation with off color parts.

20 The female parent used in the crossing of 'Sunsenerabu' is a clone of our own breeding line, *Senecio cruentus*, '8S-84e' (not patented in the United States), which is a compact, dome-shaped plant, 16 cm in height. The stems are thick, 8.0 mm in diameter, with no anthocyanin coloration. The leaf is of a serrated heart 25 form and moderate yellow green. The leaf size is medium, 12.0 cm long, 12.5 cm wide. The flower is single flowered and has white petals with white disk flowers having no marginal variegation. '8S-84e' has some scent.

30 The pollen parent used in the crossing of 'Sunsenerabu' is our breeding line, *Senecio heritieri* (not patented or sold in the United States), which was introduced from England at first. *Senecio heritieri* is a high and dome-shaped plant, 26 cm in height with abundant branching. Stems are 5.1 mm in diameter, with no 35 anthocyanin coloration. The leaf is in a serrated heart form and light yellowish green. The leaf size is small, 5.5 cm long, 6.3 cm wide. The flower is single flowered,

having strong purple petals with vague white parts and strong reddish purple disk flowers. *Senecio heritieri* has no scent.

5 Progress

The controlled crossing with *Senecio cruentus* '8S-84e' and *Senecio heritieri* was conducted at Omori-cho, Yokaichi-shi, Shiga, Japan in February, 1999. Seedlings from this crossing were grown since September, 1999. Four strains were selected in January 2000 among them in view of flower color and earliness. After multiplication by tissue culture, the botanical characteristics of the selected new strains were tested in pots since September 2000, using parent varieties and 'Sunsenebu' (patented in the United States: No.PLANT12104, at 25.Sep.2001) and 'Miss Yokohama' (not patented in the United States) for comparison, since 2000. As a result, one strain was selected and it is confirmed that the selected variety met our criteria of being uniform and stable in its characteristics.

Then this new variety of *Senecio* genus plant was named 'Sunsenerabu' (*Senecio cruentus* x *Senecio heritieri*)

25 *Senecio cruentus*, '8S-84e', *Senecio heritieri* are presently maintained at the Omori-cho, Yokaichi-shi, Shiga-ken, Japan.

In the following descriptions, the color-coding is in accordance with the Horticultural Colour Chart of the Royal Horticultural Society, London, England (R.H.S. Colour Chart).

The botanical characteristics of the female parent plant *Senecio cruentus*, '8S-84e', used in the crossing of 'Sunsenerabu' are as follows.

35 Plant:

Growth habit - Dwarf compact
Height - 16 cm

Stem:

Thickness - 8.0 mm

Color - Moderate yellowish green (R.H.S.C.C.

No.139C)

5 Anthocyanin coloration - Absent

Branching - Fair

Pubescence - Sparse

Length of third internode below flag leaf - 0.5 cm

Leaf:

10 Whole shape - Heart form with a swollen basal part, which is notched at where the basal part of the blade attaches to the petiole.

Depth of concavity of leaf margin - Medium

Type of convexity - Acute

15 Apex shape - Obtuse

Base shape - Cordate

Degree of Undulation - Fair

Length - 12.0 cm

Width - 12.5 cm

20 Diameter of petiole - 5.0 mm

Length of petiole - 5.5 cm

Color of upper surface - Moderate yellow green

(R.H.S.C.C. No.137C)

Color of reverse surface - Grayish yellow green

25 (R.H.S.C.C. No.138B)

Anthocyanin coloration of reverse surface - Absent

Pubescence of upper surface - Present

Pubescence of reverse surface - Dense

Color of pubescence of reverse surface - White

30 Flower (Single flowered):

Shape of flower cluster - Flat

Diameter of flower cluster - 20 cm

Height of flower cluster - 8 cm

Transected shape of corolla - Flat

35 Diameter of flower - 5.5 cm

Size of disk flower - 1.2 cm

Color of petal - White (R.H.S.C.C. No.155D)

Marginal variegation - Absent
Color of disk flower - White (R.H.S.C.C. No.155D)
Petal length - 2.1 cm
Petal width - 1.0 cm
5 Shape of petal - Elliptical
Lengthwise warp of petal - Flat
Concavity of petal tip - Present
Shape of petal tip - Rounded
Number of ray flower - 13
10 Number of disk flower - 105
Diameter of pedicel of the first flower - 1.6 mm
Length of pedicel of the first flower - 2.4 cm
Number of flowers per a flower cluster - 75
Scent - Present
15 Calyx:
Degree of concavity - Flat
Degree of recurvature - 2.2 mm
Color - Moderate yellow green (R.H.S.C.C. No.139C)
Anthocyanin coloration - Absent
20 Pistil:
Color - Light yellow (R.H.S.C.C. No.11B)
Number - 1
Type - Style branches truncate (i.e. the top of the style is separated into two and the shape of the top is truncated)
25 Stamen:
Color - Brilliant yellow (R.H.S.C.C. No.12B)
Type - 5 anthers are connate, with separated filaments
30 Blooming period - January (Sowing in August)
Hardiness:
Cold - Good
Rain - Good
Heat - Good
35 Resistance:
Disease - Good
Insect - Good

The botanical characteristics of the male parent plant *Senecio heritieri* used in the crossing of 'Sunsenerabu' are as follows.

5 Plant:

Growth habit - Dwarf compact

Height - 26 cm

Stem:

Thickness - 5.1 mm

10 Color - Very pale green (R.H.S.C.C. No.128D)

Anthocyanin coloration - Absent

Branching - Abundant

Type of primary lateral shoot - Branch from every node

15 Pubescence - Dense

Length of third internode below flag leaf - 0.8 cm

Leaf:

Whole shape - Heart form with a swollen basal part, which is notched at where the basal part of the blade attaches to the petiole.

20 Depth of concavity of leaf margin - Medium

Type of convexity - Acute

Apex shape - Obtuse

Base shape - Cordate

25 Degree of Undulation - Weak

Length - 5.5 cm

Width - 6.3 cm

Diameter of petiole - 4.2 mm

Length of petiole - 7.5 cm

30 Color of upper surface - Light yellowish green (R.H.S.C.C. No.136D)

Color of reverse surface - Very pale green

(R.H.S.C.C. No.128D)

Anthocyanin coloration of reverse surface - Absent

35 Pubescence of upper surface - Dense

Pubescence of reverse surface - Dense

Color of pubescence of reverse surface - White

Flower (Single flowered):

Shape of flower cluster - Uneven
Diameter of flower cluster - 18 cm
Height of flower cluster - 15 cm
5 Transected shape of corolla - Flat
Diameter of flower - 4.8 cm
Size of disk flower - 0.9 cm
Color of petal - Strong purple (R.H.S.C.C. No.81B)
Marginal variegation - Present
10 Diameter of off color part - 1.3 cm
Border of marginal variegation - Vague
Color of disk flower - Strong reddish purple
(R.H.S.C.C. No.72A)
Petal length - 2.2 cm
15 Petal width - 0.4 cm
Shape of petal - Rectangular
Lengthwise warp of petal - Flat
Concavity of petal tip - Present
Shape of petal tip - Acute
20 Number of ray flower - 13
Number of disk flower - 110
Diameter of pedicel of the first flower - 1.2 mm
Length of pedicel of the first flower - 2.5 cm
Number of flowers per a flower cluster - 35
25 Scent - Absent

Calyx:

Degree of concavity - Flat
Degree of recurvature - 3.1 mm
Color - Very pale green (R.H.S.C.C. No.128D)
30 Anthocyanin coloration - Present

Pistil:

Color - Strong reddish purple (R.H.S.C.C. No.72A)
Number - 1
Type - Style branches truncate (i.e. the top of the
35 style is separated into two and the shape of the top is
truncated)

Stamen:

Color - Strong reddish purple (R.H.S.C.C. No.72A)

Type - 5 anthers are connate, with separated filaments

Blooming period - End of January (Sowing in August)

5 Hardiness:

Cold - Good

Rain - Good

Heat - Good

Resistance:

10 Disease - Good

Insect - Good

The botanical characteristics of a similar variety 'Sunsenebu' (*Senecio cruentus* x *Senecio heritieri*) which was patented in the United States, used for examination as a comparison variety are as follows.

Plant:

Growth habit - Semi- erect

Height - 33 cm

20 Stem:

Thickness - 4.5 mm

Color - Very pale green (R.H.S.C.C. No.147C)

Anthocyanin coloration - Present unevenly

Degree of anthocyanin coloration - Light

25 Branching - Abundant, i.e. 9 to 11 branches

Type of primary lateral shoot - Branch from every node

Pubescence - Sparse

Length of third internode below flag leaf - 1.4 cm

30 Leaf:

Whole shape - Heart form with a swollen basal part, which is notched at where the leaf attaches to the petiole.

35 Depth of concavity of leaf margin - Approximately 7mm on average.

Type of convexity - Acute

Apex shape - Acute

Base shape - Cordate
Degree of Undulation - Weak
Length - 6.7 cm
Width - 8.0 cm

5 Diameter of petiole - 3.1 mm
Length of petiole - 7.4 cm
Color of upper surface - Moderate yellow green
(R.H.S.C.C. No.137C)
Color of reverse surface - Moderate yellow green

10 (R.H.S.C.C. No.138C)
Anthocyanin coloration of reverse surface - Present
Degree of antocyanin coloration - Light
Pubescence of upper surface - Dense
Pubescence of reverse surface - Dense

15 Color of pubescence of reverse surface - White
Flower (Single flowered):
Shape of flower cluster - Uneven
Diameter of flower cluster - 36 cm
Height of flower cluster - 18 cm

20 Transected shape of corolla - Flat
Diameter of flower - 7.7 cm
Size of disk flower - 1.3 cm
Color of petal - Vivid violet (R.H.S.C.C. No.89C)
Marginal variegation - Absent

25 Color of disk flower - Deep violet (R.H.S.C.C.
No.93A)
Petal length - 3.2 cm
Petal width - 0.8 cm
Shape of petal - Rectangular

30 Lengthwise warp of petal - Flat
Concavity of petal tip - Present
Shape of petal tip - Acute
Number of ray flower - 13-15
Number of disk flower - 135

35 Diameter of pedicel of the first flower - 1.0 mm
Length of pedicel of the first flower - 5.5 cm
Number of flowers per a flower cluster - 65

Scent - Present

Calyx:

Degree of concavity - Moderate

Degree of recurvature - 1.0 mm

5 Color - Very pale green (R.H.S.C.C. No.130D)

Anthocyanin coloration - Present

Pistil:

Color - Deep violet (R.H.S.C.C. No.93A)

Number - 1

10 Type - Style branches truncate (i.e. the top of the style is separated into two and the shape of the top is truncated)

Stamen:

Color - Deep violet (R.H.S.C.C. No.93A)

15 Type - 5 anthers are connate, with separated filaments

Blooming period - Start at the beginning of December (cutting in July)

Hardiness:

20 Cold - Good

Rain - Good

Heat - Good

Resistance:

Disease - Good

25 Insect - Good

The botanical characteristics of a similar variety 'Miss Yokohama', used for examination as a comparison variety are as follows.

30 Plant:

Growth habit - Dwarf compact

Height - 19 cm

Stem:

Thickness - 5.4 mm

35 Color - Moderate yellow green (R.H.S.C.C. No.139C)

Anthocyanin coloration - Present

Degree of anthocyanin coloration - Medium

Branching - Fair

Pubescence - Dense

Length of third internode below flag leaf - 0.5 cm

Leaf:

5 Whole shape - Heart form with a swollen basal part, which is notched at where the basal part of the leaf attaches to the petiole.

Depth of concavity of leaf margin - Medium

Type of convexity - Acute

10 Size of wing (swollen basal part) - Large

Apex shape - Obtuse

Base shape - Cordate

Degree of Undulation - Weak

Length - 17.5 cm

15 Width - 13.0 cm

Diameter of petiole - 5.2 mm

Length of petiole - 7.7 cm

Color of upper surface - Moderate yellow green

(R.H.S.C.C. No.137C)

20 Color of reverse surface - Moderate yellow green

(R.H.S.C.C. No.138C)

Anthocyanin coloration of reverse surface - Present

Degree of anthocyanin coloration - Medium

Pubescence of upper surface - Dense

25 Pubescence of reverse surface - Dense

Color of pubescence of reverse surface - White

Flower (Single flowered):

Shape of flower cluster - Rounded

Diameter of flower cluster - 23 cm

30 Height of flower cluster - 17 cm

Transected shape of corolla - Flat

Diameter of flower - 4.2 cm

Size of disk flower - 1.1 cm

Color of petal - Vivid violet (R.H.S.C.C. No.96A)

35 Marginal variegation - Present

Diameter of off color part - 2.5cm

Border of marginal variegation - Fairy clear

Color of disk flower - Deep violet (R.H.S.C.C.

No. 93A)

Petal length - 1.6 cm

Petal width - 0.8 cm

5 Shape of petal - Generally rectangular

Lengthwise warp of petal - Convex

Concavity of petal tip - Present

Shape of petal tip - Rounded

Number of ray flower - 13

10 Number of disk flower - 86

Diameter of pedicel of the first flower - 1.7 mm

Length of pedicel of the first flower - 2.7 cm

Number of flowers per a flower cluster - 90

Scent - Present

15 Calyx:

Degree of concavity - Flat

Degree of recurvature - 1.2 mm

Color - Very pale green (R.H.S.C.C. No. 130D)

Anthocyanin coloration - Absent

20 Pistil:

Color - Deep violet (R.H.S.C.C. No. 93A)

Number - 1

Type - Style branches truncate (i.e. the top of the style is separated into two and the shape of the top is truncated)

25 Stamen:

Color - Deep violet (R.H.S.C.C. No. 93A)

Type - 5 anthers are connate, with separated filaments

30 Blooming period - January (Sowing in August)

Hardiness:

Cold - Good

Rain - Good

Heat - Good

35 Resistance:

Disease - Good

Insect - Good

SUMMARY OF THE VARIETY

'Sunsenerabu' is a dome-shaped plant of height (average height of 39.5 cm in the blooming period). There 5 is a branch from every node and branching is abundant, i.e. 9 to 11 branches. The stem is 4.9 mm in diameter with few pubescences.

The leaves are small, 7.6 cm long, 9.2 cm wide. The 10 leaves are shaped in a serrated heart form with a swollen basal part, which is notched at where the basal part of the blade attaches to the petiole. The leaf color is strong yellow green, with no anthocyanin coloration on the reverse side. Pubescence on upper side of leaf is sparse and pubescence on the reverse side is dense. The 15 petiole is 9.2 cm long and 3.2 mm in diameter.

The new variety has large flower cluster, which are high and flat in shape (i.e. the locations of the individual flowers forming the cluster are flat). A 20 flower cluster means a gathering of heads in a plant of the new variety. A head is a flower consisting of a disk and a plurality of petals, i.e. ray flowers. The flower is single flowered with marginal variegation, which has obscure border. The corolla has a flat transected shape (i.e. when the corolla opens, petals are flat when viewed 25 from the side). The flower is 7.4 cm in diameter, while the disk flower is 1.3 cm in diameter. The petal is 3.0 cm long and 0.8 cm wide. The color of the petal is light violet (R.H.S.C.C. No.91A), while the color of the disk is strong violet (R.H.S.C.C. No.90B). One flower has 13 30 ray flowers and 149 disk flowers. A ray flower has a pistil, but no stamen. A disk flower is tubular and has a pistil and a stamen formed by 5 connate anthers with separated filaments. 180 flowers are in a flower cluster. The degree of recurvature of calyx is 2.0 mm. The calyx 35 is flat and has no anthocyanin coloration. Pedicel is 3.5 cm long and 1.3 mm in diameter. The flowers have some scent.

Blooming period is medium and blooming term is long. After cutting in July, flowers start to bloom at the end of the January in Omori-cho, Yokaichi-shi, Shiga-ken, Japan. The blooming continues from January to May, if under appropriate control. Around a temperature of 15°C, the individual bloom lasts two weeks. The flower buds grow one after another from the axil. The flower is not self-cleaning because petals remain attached in a wilted and dry state as the flower fully matures.

The new variety has moderate cold hardiness and resistance to heat. The new variety does not die at around 0°C, but when frost occurs the cells can be necrosed resulting in the death of the plant. Usually, *Senecio cruentus* has a tendency of slightly reduced growth in a hot season, whereas the new variety has no problem in growing in the hot season.

The fertility of the new variety is low. Generally, *Senecio* genus plants have high fertility (i.e. bear many seeds per flower). In contrast, 'Sunsenerabu' bears no seed or very few seeds per flower. When no seed is formed, there is a part corresponding to a seed coat, which remains in an immature state, i.e. without embryo and endosperm inside the immature seed coat.

The new variety; 'Sunsenerabu', differs from similar varieties, 'Sunsenebu' and 'Miss Yokohama', of the *Senecio* genus and from parent varieties *Senecio heritieri* and '8S-84e' in the following points.

1. 'Sunsenerabu' is a high type plant, 39.5 cm in height. 'Sunsenebu' is a high type plant, 33 cm in height. 'Miss Yokohama' is a compact type plant, 19 cm in height. The pollen parent *Senecio heritieri* is a semi-compact type plant, 26 cm in height and female plant '8S-84e' is a compact type plant, 16 cm in height.

2. The flower of 'Sunsenerabu' has light violet petals, strong violet disk flowers and obscure marginal variegation. That of 'Sunsenebu' has vivid violet petals,

deep violet disk flowers and no marginal variegation. That of 'Miss Yokohama' has vivid violet petals, vivid violet disk flowers and no marginal variegation. That of female parent '8S-84e' has white petals, white disk and no marginal variegation. That of pollen parent *Senecio heritieri* has strong purple petals, strong reddish purple disk flowers and white marginal part.

5 3. The petiole length of 'Sunsenerabu' is longer than that of 'Sunsenebu' or 'Miss Yokohama'.

10 4. 'Sunsenerabu' has less pubescence of stems than that of 'Miss Yokohama'.

5 5. The blooming term of 'Sunsenerabu' is longer than that of 'Miss Yokohama'.

15 6. The fertility of 'Sunsenerabu' is lower than that of 'Miss Yokohama'.

The plant height and flower color are most distinctive characteristics of this new variety, 'Sunsenerabu'.

20 BRIEF DESCRIPTION OF THE DRAWING

Fig.1 is a photograph giving a partial view of the new variety of *Senecio* genus plant named 'Sunsenerabu' planted in a pot.

25 Fig.2 is a photograph of flowers of the new variety of *Senecio* genus plant named 'Sunsenerabu'.

DESCRIPTION OF THE NEW VARIETY

The botanical characteristics of this new and distinct variety of *Senecio* genus plant named 'Sunsenerabu' 7 months after cutting in July are as follows (i.e. these botanical characteristics were observed in January of the year following the cutting with the new variety planted in a 15 cm pot and grown in a greenhouse, the lowest temperature of which was controlled at 12°C in winter).

35 Plant:

Growth habit - Semi-dwarf erect

Height - 39.5 cm

Spread - 45.0 cm

Stem:

Thickness - 4.9 mm

5 Color - Light yellow green (R.H.S.C.C. No.144D)

Anthocyanin coloration - Absent

Branching - Abundant, i.e. 9 to 11 branches

Type of primary lateral shoot - Branch from every node

10 Pubescence - Sparse

Length of third internode below flag leaf - 2.1 cm

Leaf:

Whole shape - Heart form with a swollen basal part, which is notched at where the basal part of the blade attaches to the petiole.

15 Depth of concavity of leaf margin - The maximum depth of concavity measured from the average convexity peak height is 5 mm.

Type of convexity - Acute

20 Apex shape - Acute

Base shape - Cordate

Degree of Undulation - Fair

Length - 7.6 cm

Width - 9.2 cm

25 Diameter of petiole - 3.2 mm

Length of petiole - 9.2 cm

Color of upper surface - Strong yellow green
(R.H.S.C.C. No.144A)

Color of reverse surface - Moderate yellow green

30 (R.H.S.C.C. No.138C)

Anthocyanin coloration of reverse surface - Absent

Pubescence of upper surface - Sparse

Pubescence of reverse surface - Dense

Color of pubescence of reverse surface - White

35 Flower (Single flowered):

Shape of flower cluster - Flat

Diameter of flower cluster - 45 cm

Height of flower cluster - 17 cm
Transected shape of corolla - Flat
Diameter of flower - 7.4 cm
Size of disk flower - 1.3 cm
5 Color of petal - Light violet (R.H.S.C.C. No.91A)
Marginal variegation - Present
Size of marginal variegation - 1.7 cm
Border of marginal variegation - Obscure
Color of disk flower - Strong violet (R.H.S.C.C.)

10 No.90B)

Petal length - 3.0 cm
Petal width - 0.8 cm
Shape of petal - Rectangular
Lengthwise warp of petal - Flat
15 Concavity of petal tip - Present
Shape of petal tip - Acute
Number of ray flower - 13
Number of disk flower - 149
Diameter of pedicel of the first flower - 1.3 mm
20 Length of pedicel of the first flower - 3.5 cm
Number of flowers per a flower cluster - 180
Scent - Present

Calyx:

25 Degree of concavity - Flat
Degree of recurvature - 2.0 mm
Color - Strong yellow green (R.H.S.C.C. No.143A)
Anthocyanin coloration - Absent

Pistil:

30 Color - Vivid purple (R.H.S.C.C. No.87A)
Number - 1
Type - Style branches truncate (i.e. the top of the style is separated into two and the shape of the top is truncated)

Stamen:

35 Color - Dark greenish yellow (R.H.S.C.C. No.152D)
Type - 5 anthers are connate, with separated filaments

Blooming period - Start at the end of January (cutting in July)

Hardiness:

Cold - Good

5 Rain - Good

Heat - Good

Resistance:

Disease - Good

Insect - Good

10 The new variety and *Senecio cruentus* have similar resistance to powdery mildew, leaf spot, aphid, whitefly, and thrips. The new variety, 'Sunsenerabu', is a tall type plant and most suitable for flower potting.

15 This new and distinct variety of *Senecio* genus plant named 'Sunsenerabu' was asexually reproduced by cutting at Omori-cho, Yokaichi-shi, Shiga-ken, Japan and the homogeneity and stability thereof were confirmed.